

(19)  
(12)

(KR)  
(B1)

(51) 。 Int. Cl. <sup>6</sup>  
B41J 2/45  
H01L 31/10

(45)  
(11)  
(24)

2001 07 12  
10 - 0294952  
2001 04 23

(21)  
(22)

10 - 1999 - 0019363  
1999 05 28

(65)  
(43)

1999 - 0088621  
1999 12 27

(30)

1998 - 149011

1998 05 29

(JP)

(73)

가 가

3 30 2

(72)

3 30 2 가 가

3 30 2 가 가

(74)

:

(54)

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(T2) , (ø 1, ø 2, ø l, ø S) (ø m)

-

1	1	SLED	.
2	SLED	.	
3	SLED	.	
4			SLED
5	SLED	.	
6	2	SLED	.
7			SLED
8	SLED	.	
9		.	
10a	10b	.	

<

1 5 :

11 15 :

51 :

211 :

212 :

213 :

214 : IC

216 :

LED

가

,

.

- LED ( , SLED ) .

- LED 1 - 238972, 2 - 208067, 2 - 212170, 3 - 20457, 3 -  
194978, 4 - 5872, 4 - 23367, 4 - 296579, 5 - 84971, JAPAN HARD COPY, 91(A  
- 17) - , 1990 3 5 IEICE(  
) PNPN - (SLED) ,  
 , SLED .

8 SLED .

(211) SLED . (212) SLED (211)  
, (214)  
 , SLED (211) IC .

(215) IC(214) (  $\varnothing 1$ ,  $\varnothing 2$ ,  $\varnothing I$ ,  $\varnothing S$  ) (   
, GND) SLED (211) . (216) (212)  
(+) ( , +5V) . (217) (212)  
(216) SLED (211)

SLED (211) 가  
가 ) P N , 가 , ( GaAs

(+) ( , ) .

, SLED (211) ,  
(217) (212) (216) .

, SLED (211) SLED (211)  
, (217( )

(217)  $600\mu\text{m}$  .

가 , SLED .

, 가 가

가

가

가

가



(212) SLED (211) . SLED (211)

(213) (213) / (ø m) (52), (ø 1,  
ø 2, ø S, ø I) (20 23), +5V (50), (53) .

(214) , SLED (211)  
IC .

3 , (215) IC(214) (ø 1, ø 2, ø S, ø I)  
( , (53) GND) SLED (211)

(216) (212) ( , +5V) .

(217) (212) (216) SLED (211)

( )

, SLED .

4 SLED (211) (1 5) (ø D)  
(ø 1, ø 2, ø S, ø I), / (ø m) .  
가 (1 5)가

4 , (T1) ( ) .  
(T2) LED

(T2) (ø 1, ø 2, ø S, ø I)  
( / (ø m) (+5V )

(T1) SLED .

(T2) (T2) , (ø 1, ø 2, ø S, ø I) +5V  
, / (ø m) 0V , (201)가

, ( ) SLED (211) ( ,  
) 가 가 .

, SLED (211) (211) (212)  
(217)

, LED  
SLED

SLED (211)

, ) 가 ( , LED 가  
가 가  
가

, 4 (  $\emptyset 1$ ,  $\emptyset 2$ ,  $\emptyset S$ ,  $\emptyset I$  ) / (  $\emptyset m$  )

가 , CPU

, 5 4 (T1) ( 2 SLED )

5 SLED

2 , SLED (11 15) (1 5)

2  $\emptyset S$  (41) 3  $\emptyset S$  (4  
2)

5

$\emptyset S$  0V 5V .  $\emptyset S$ 가 5V , Va 5V, Vb 3.7V(  
가 1.3V 가 ), Vc 2.4V, Vd 1.1V , 0V ,  
(11 12) 0V 5V 3.7V

,  $\emptyset 1$  5V 0V , (11) 5V ,  
(11) 0V , 3.7V ,  
(11)

,  $\emptyset S$  0V , (11)가 Va 5V  
( 가  $\emptyset S$  가 , 가 ,  
) . ,  $\emptyset S$  0V , 1 1

,  $\emptyset I$  5V 0V , (11)가  
(1) (1) 1 LED . 1 LED ,  $\emptyset I$   
5V , (1) 0 ,  
(1)

, (11) (12)

(1)가 ,  $\emptyset 1$  0V (11) ,  
(11) (Va) 5V Vb 3.7V

,  $\emptyset 2$  5V 0V , 5V ,  
0V , 3.7V , (12)

(12)가  $\varnothing 1$  0V 5V , (11) (1  
)가 ,  $\varnothing I$  5V 0V , - (11) (12)  
 , (2) .

가 가 , 0V 가  
 ,  
 - ,  $\varnothing I$  3.4V( )  
 0 .

[ 2 ]

, 6 7 2 , 1 .

6 SLED .  
SLED (211) , (51) 1 .  
IC(214) / (  $\varnothing p$  ) (60) (213) . (60)  
(61) 3 (62) .  
 , / (  $\varnothing p$  ) / (  $\varnothing m$  ) .  
( )

7 (  $\varnothing 1$ ,  $\varnothing 2$ ,  $\varnothing S$ ,  $\varnothing I$  ), SLED (211) (1 5)  
 / (  $\varnothing p$  ) .

4 , (T2) LED  
 (T1) ,  
 , (  $\varnothing 1$ ,  $\varnothing 2$ ,  $\varnothing S$ ,  $\varnothing I$  ), ( / (  $\varnothing p$  )  
(GND) (T2) .

(T1) (T1) SLED  
 ,  
 가 .



(T1) (T2) . , (ø 1, ø 2, ø  
S, ø l) / (ø p)  
3 (62) . , (+5V) / (ø p)  
(61) .

(T2) , SLED (211) ( )  
가 가 0 ,

, (217) SLED (211) (212)  
 . SLED  
 . SLED ( )

, 가  
가 , 가  
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가 .

가

( )

, SLED

9 . SLED , . SLE  
D (211) 9 , (212) SLED (211) (902) .  
(903) (self - focusing) (903) (902)  
SLED (211) (902) (212) . (2  
12) (903) 가 (212)  
(903) SLED (901) .

, (904) SLED (901) (902)  
1 (905) SLED (901) (902)  
 , (906) (905)  
 , (907)

, (908) . (909) (900)

, (910) (900) (921)

(920) . , (900) (910)

(909) (910) (900)

, 10a 10b , (T2)

10a 2 (J1) 3 (J2) . 10a

, (tj1s) (J1) , (tj1e) (J1)

, (tj2s) (J2) , (tj2e)

(J2) , (T2) ( , tj1e

tj2s ) (Ta)

(909) , (908) (T2) ,

(920) (T1) . , (908)

(T2)

, (Tb) (T2)

10b (Tc) (T2) . 10b ,

가 , 가

, 가 , 가

가 가

SLED

가

가

가 , 가 ,

(57)

1.

가 , .

2.

1 , .

3.

1 , .

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1 , , .

5.

4 , , .

6.

5 , .

7.

1 , .

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9 , 2 , 2 .

11.

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12 , , .

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13 , 2 2 .

15.

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16.

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가 , .

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가 ,

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37 , .

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38 , .

40.

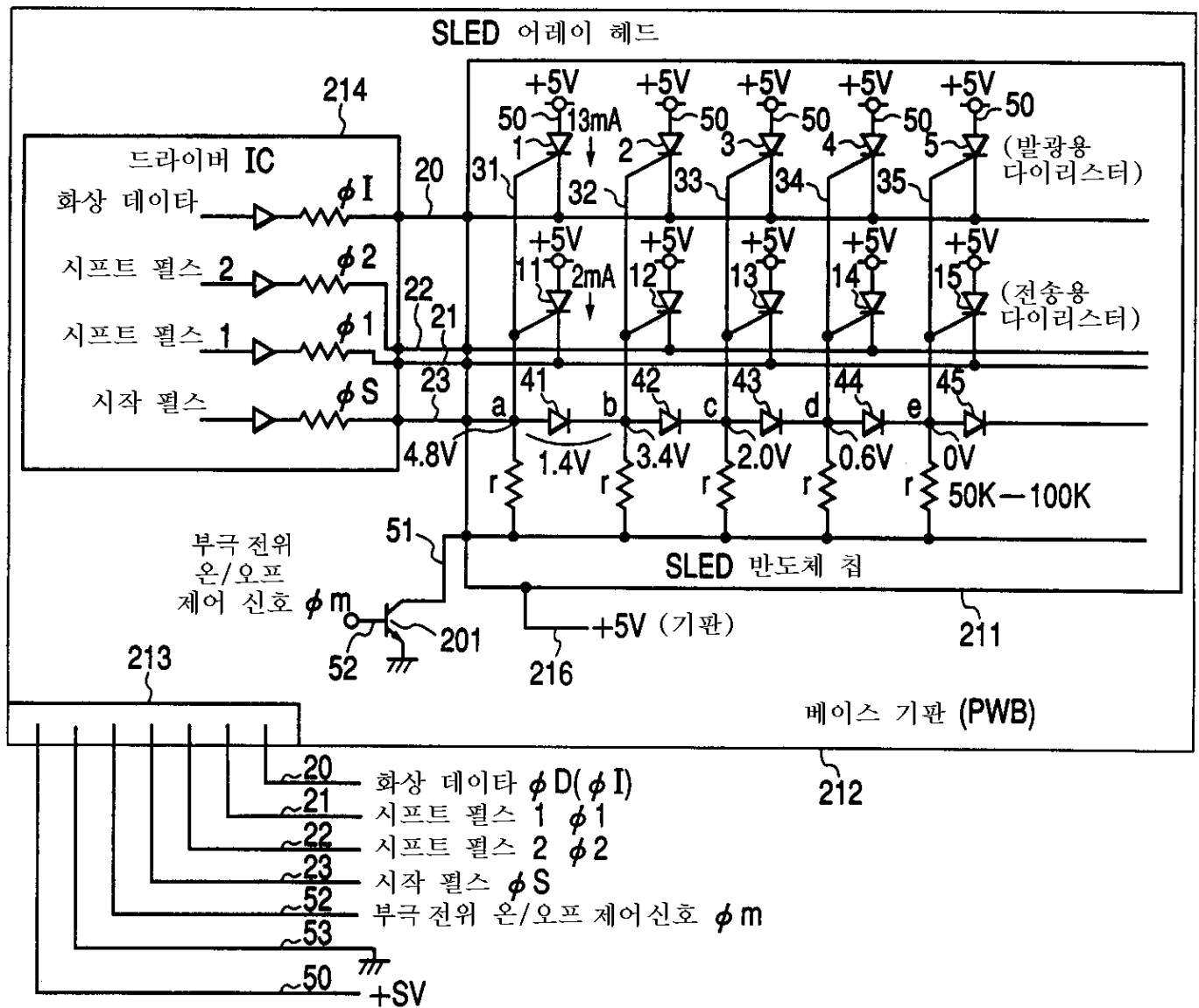
37 , .

41.

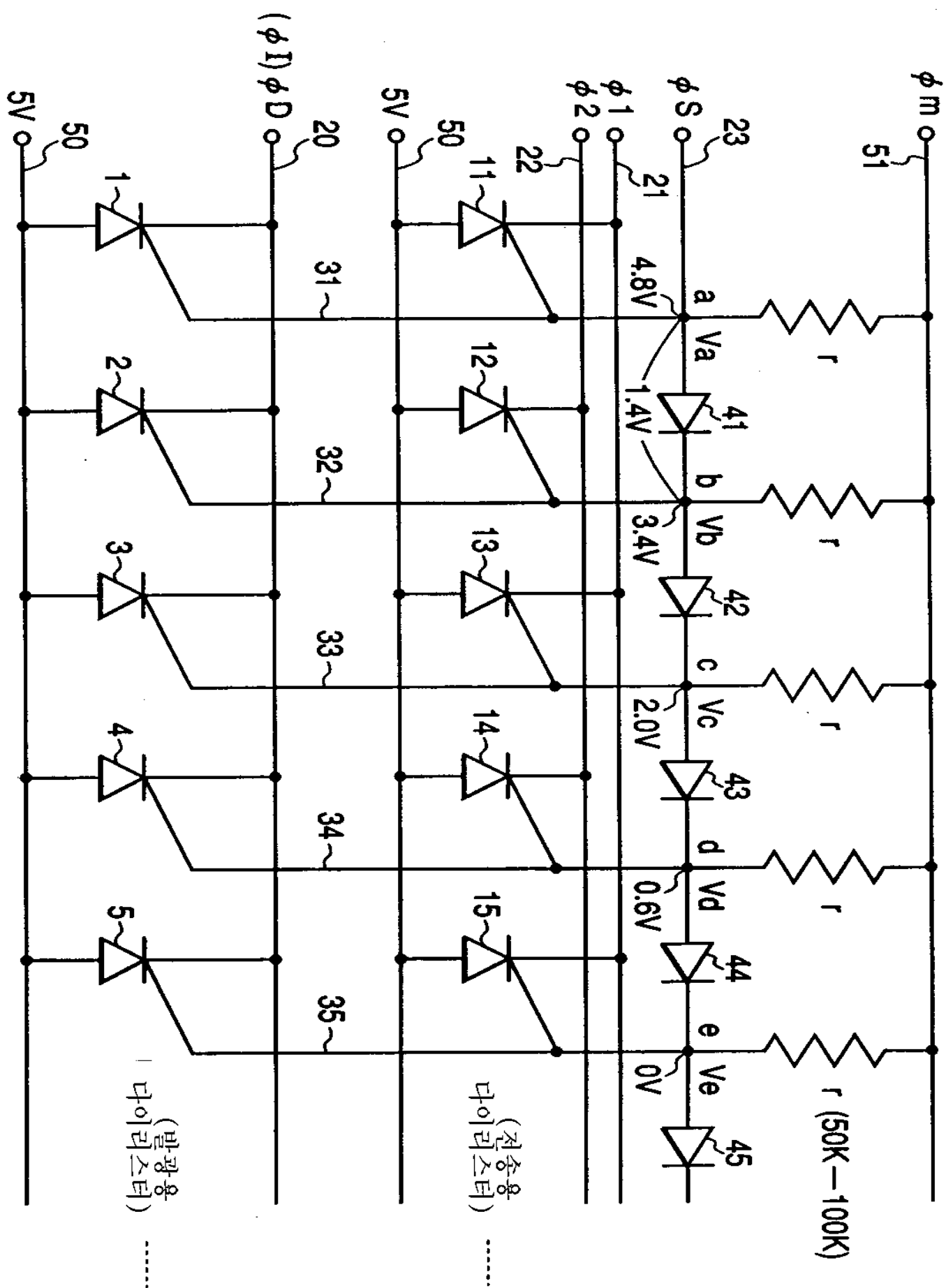
37 , .

42.

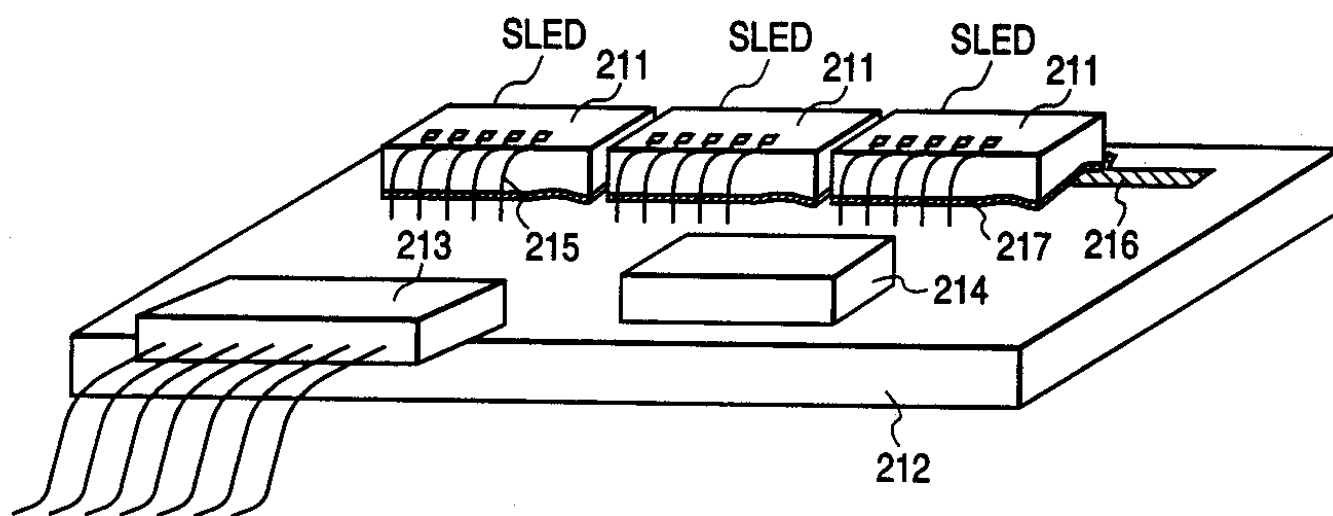
37 , .

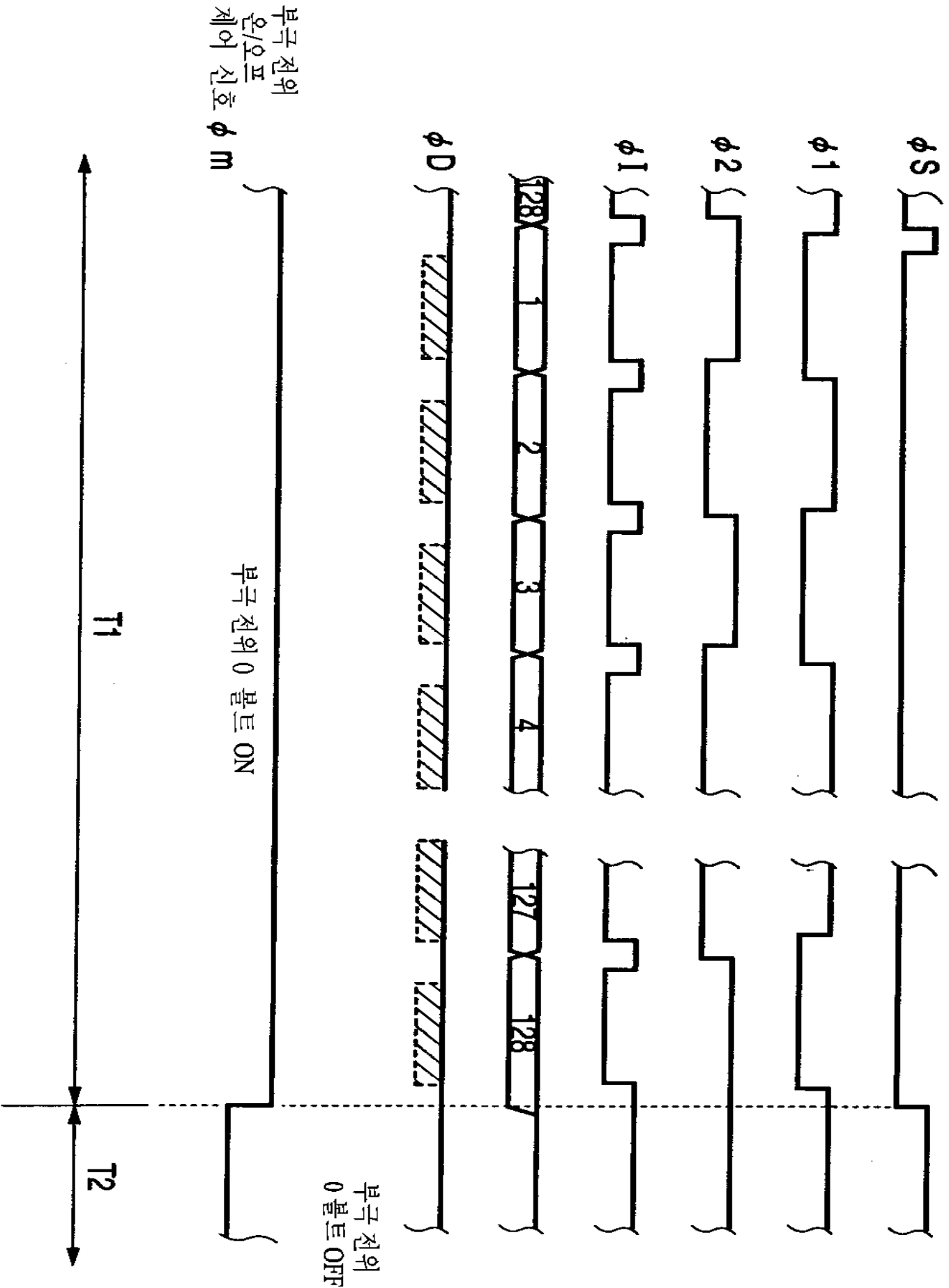


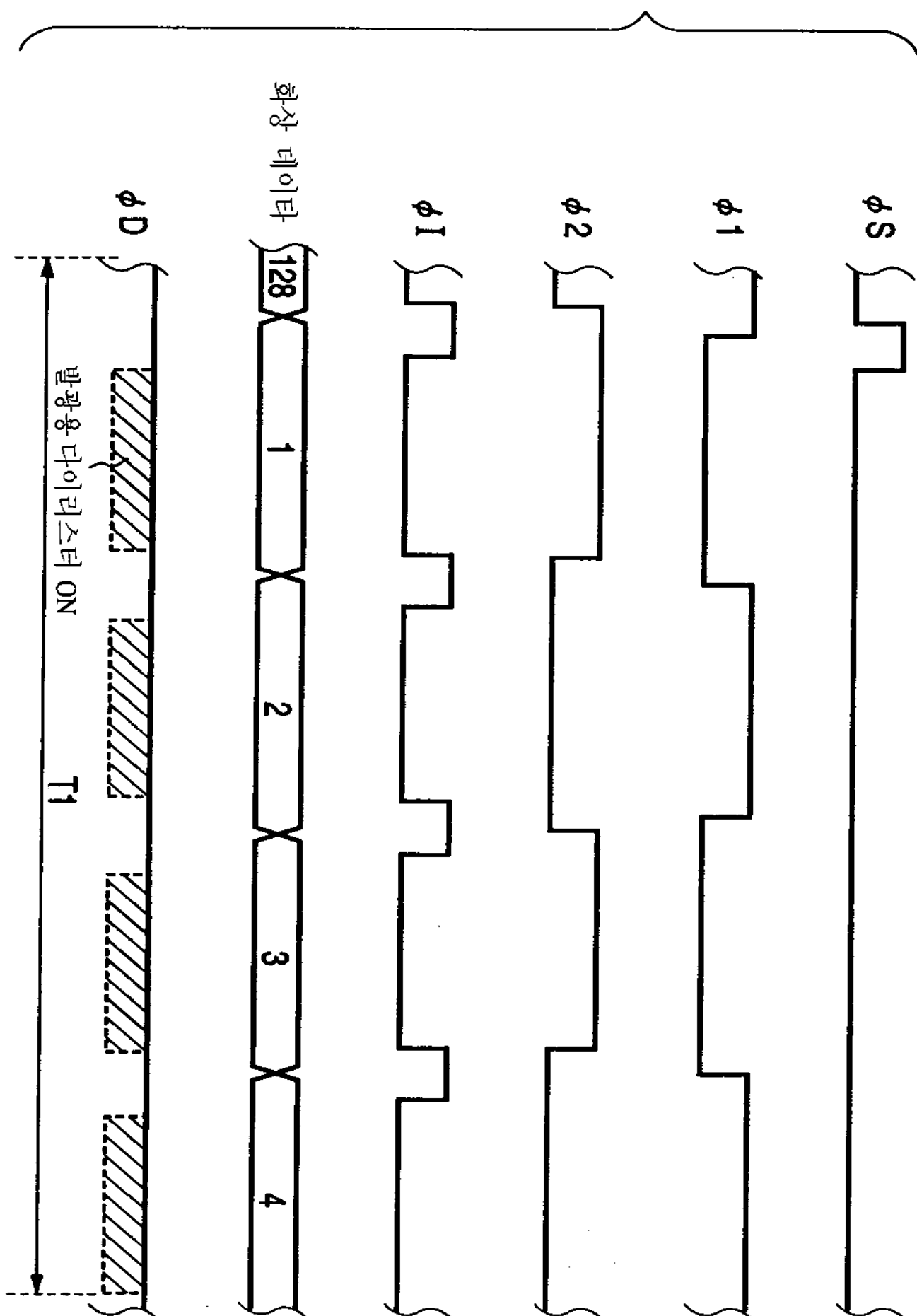


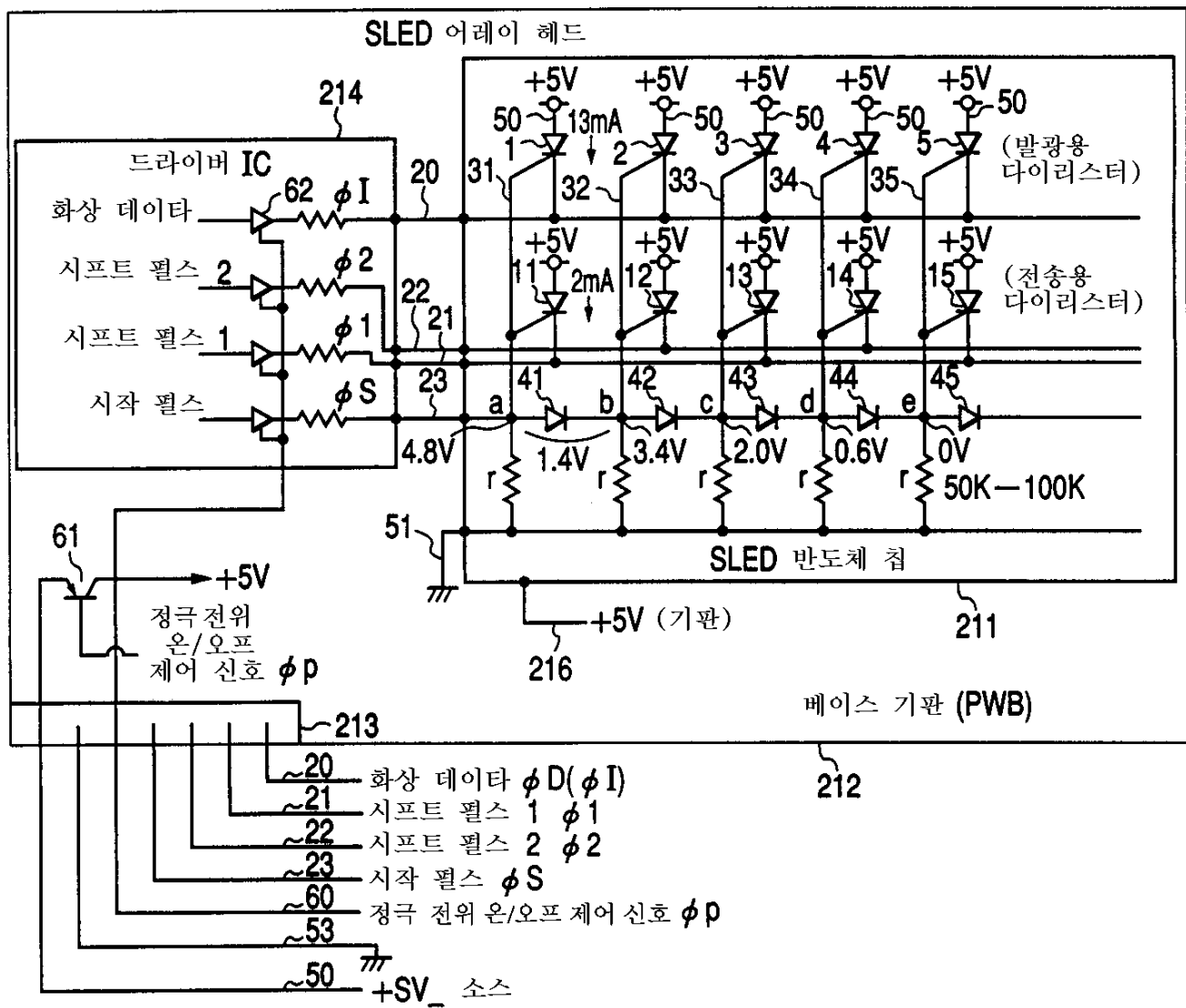


3

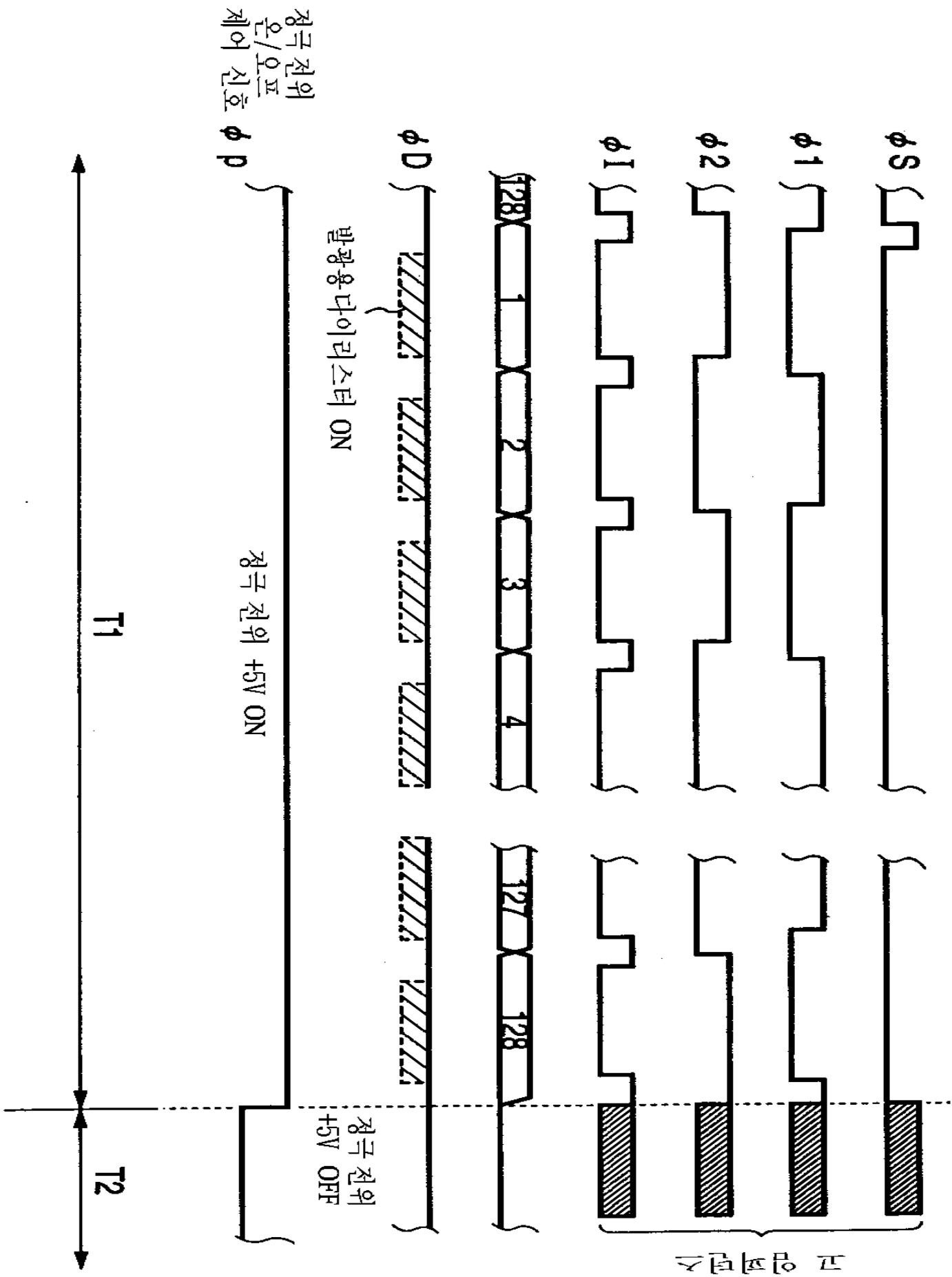




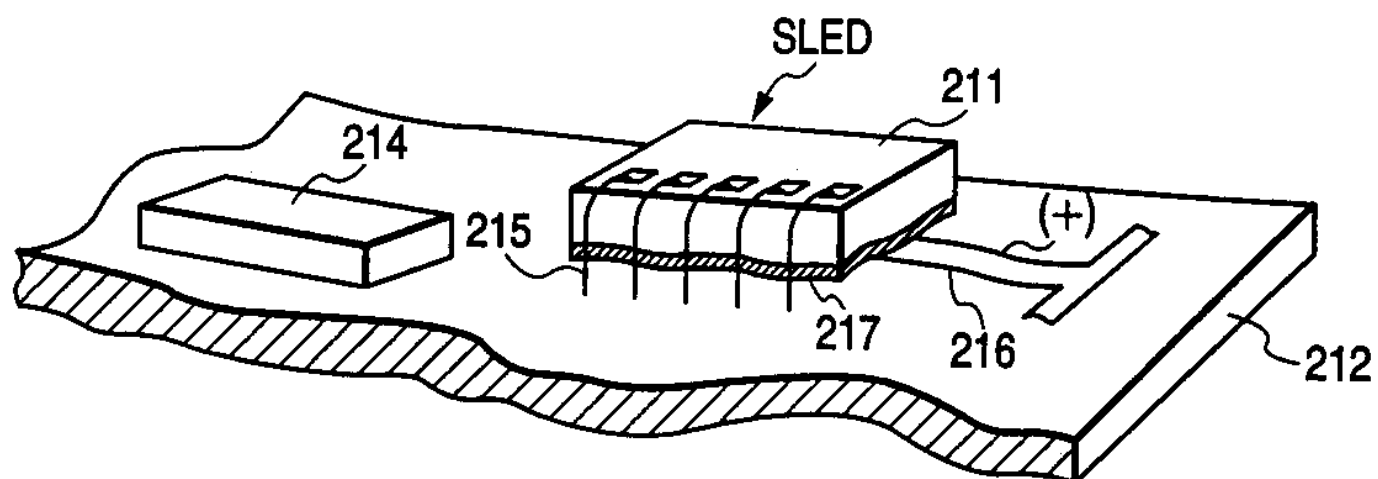


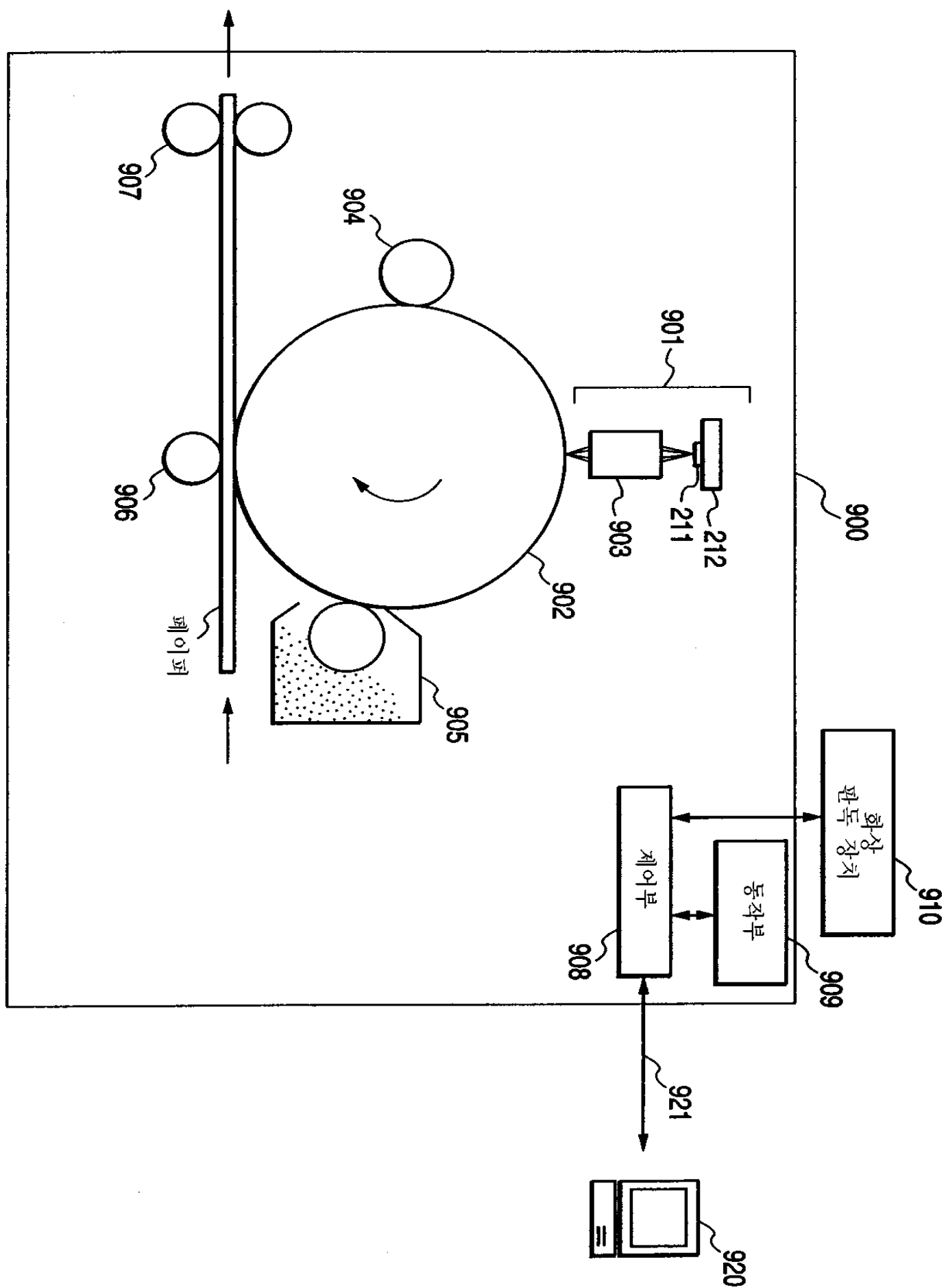


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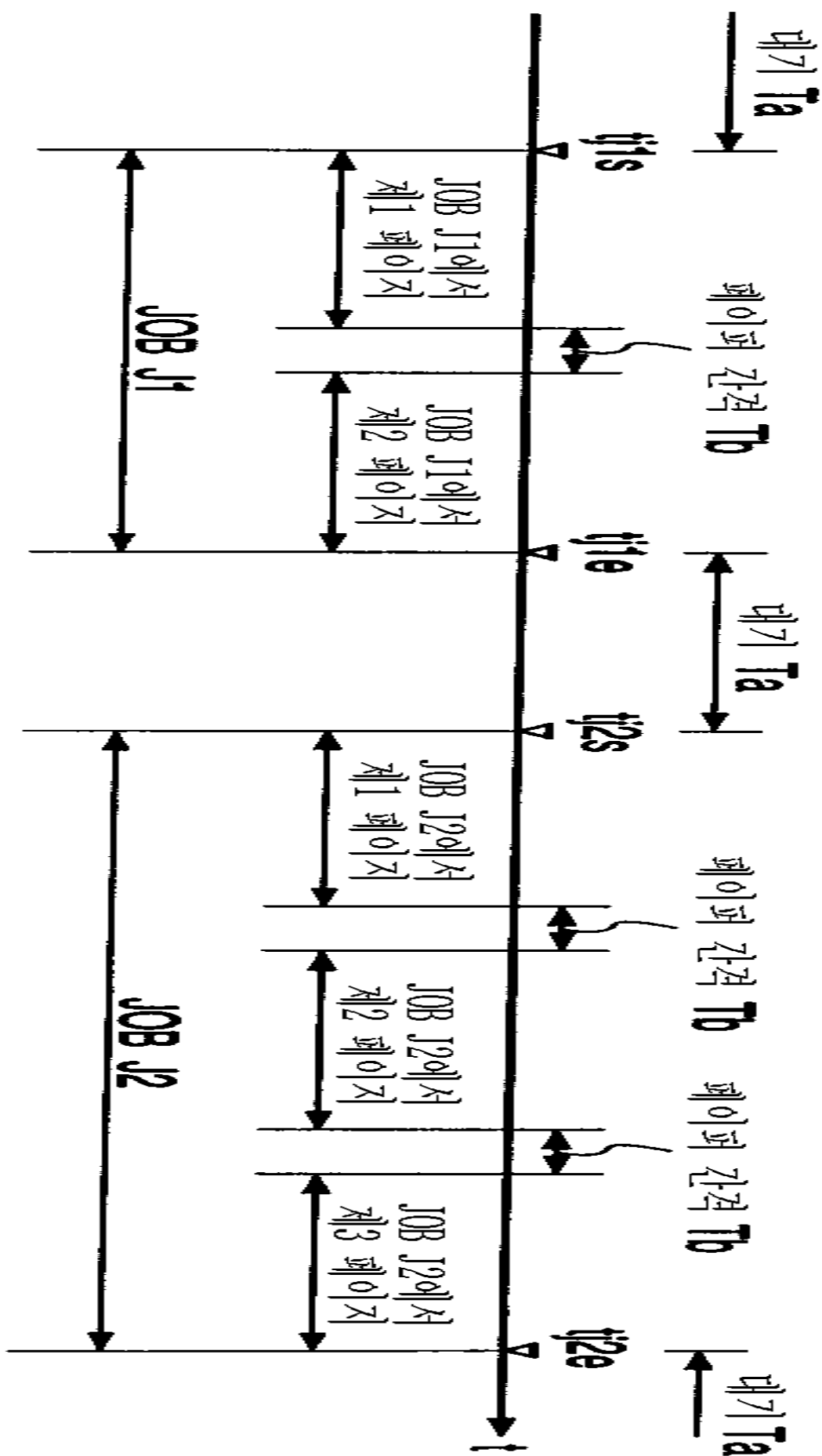
8







10a



10b

